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(54) PORTABLE TELEPHONE DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a portable telephone device which is used as a portable telephone as well as for an automatic ticket gate, where it can be used for the automatic ticket gate even during a call used as a portable telephone.

SOLUTION: In the portable telephone device usable as the automatic ticket gate, a passenger is permitted to pass while the device is used as a portable telephone for a call. During the transit, the call is interrupted and a guide on a station name in transit is transmitted to the other side of the call. In other words, when an inquiry signal is received from the automatic ticket gate side Bluetooth during a call with a portable telephone, the Bluetooth communication is allowed

and a passage judgment process is performed on the automatic ticket gate side.

The portable telephone device informs the other side of the call of transiting a station provided with the automatic ticket gate.

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## CLAIMS

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[Claim(s)]

[Claim 1] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station In the portable telephone which has a telephone function, during the message by the above-mentioned telephone function A notice means to notify the purport which has passed data, such as a name of the station, through the above-mentioned wicket as the message partner under above-mentioned message in the reception beam case by the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this notice means, The portable telephone carry out having provided a restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the

time of termination of the ticket gate processing by activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, and this activation means as the description.

[Claim 2] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station A notice means to notify the message partner under above-mentioned message for data, such as a name of the station, of the above-mentioned name of the station during the message by the above-mentioned telephone function in the portable telephone which has a telephone function in the reception beam case by the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this notice means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, The portable telephone characterized by providing a deduction means to deduct from a part for the time amount

interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and the \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[Claim 3] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station The 1st notice means which notifies the message partner under above-mentioned message for data, such as a name of the station, of the above-mentioned name of the station during the message by the above-mentioned telephone function in the portable telephone which has a telephone function in the reception beam case by the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this 1st notice means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, The 2nd notice means which notifies the above-mentioned message partner of the restart of a message when the

above-mentioned message is resumed by this restart means, The portable telephone characterized by providing a deduction means to deduct from a part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and the \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[Claim 4] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station A reception means to receive initiation of ticket gate processing, and an installation station code during the message by the above-mentioned telephone function in the portable telephone which has a telephone function by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, A conversion means to change a reception beam installation station code into voice data or an indicative data with this reception means, A notice means to notify the message partner under above-mentioned message of the voice data or the indicative data changed by this conversion means, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this notice means, The portable telephone carry out having provided a restart means to resume the message by the telephone function interrupted by

the above-mentioned interruption means at the time of termination of the ticket gate processing by activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, and this activation means as the description.

[Claim 5] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station A reception means to receive initiation of ticket gate processing, and an installation station code during the message by the above-mentioned telephone function in the portable telephone which has a telephone function by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, A conversion means to change a reception beam installation station code into voice data or an indicative data with this reception means, A transmitting means to transmit the voice data or the indicative data changed by this conversion means to the message partner under above-mentioned message, An interruption means to interrupt the message by the above-mentioned telephone function after transmission by this transmitting means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption



means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, The portable telephone characterized by providing a deduction means to deduct from a part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and the \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[Claim 6] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station A reception means to receive initiation of ticket gate processing, and an installation station code during the message by the above-mentioned telephone function in the portable telephone which has a telephone function by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, A conversion means to change a reception beam installation station code into voice data or an indicative data with this reception means, The 1st notice means which notifies the message partner under above-mentioned message of the voice data or the indicative data changed by this conversion means, An interruption means to interrupt the message by the above-mentioned telephone

function after the notice by this 1st notice means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, The 2nd notice means which notifies the above-mentioned message partner of the restart of a message when the above-mentioned message is resumed by this restart means, The portable telephone characterized by providing a deduction means to deduct from a part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and the \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[Claim 7] The 1st processing means which performs processing as a personal digital assistant of a station service wireless system in the wireless personal digital assistant which performs radio using a short-distance radio function, With the 2nd processing means which performs a message as a cellular phone, and this 2nd processing means, as a cellular phone during a message The notice of the use to the above-mentioned station service wireless system as the partner under message when the inquiry by the short-distance radio function from the

external instrument of a station service wireless system occurs, A notice means to notify interruption of a message, and an interruption means to interrupt a message as a cellular phone by the processing means of the above 2nd after the notice by this notice means, The 3rd processing means which performs processing after interruption by this interruption means as a personal digital assistant of the station service wireless system by the processing means of the above 1st, A restart means to resume the message interrupted by the above-mentioned interruption means after termination of processing by this 3rd processing means, A part for the time amount interrupted by the above-mentioned interruption means, and a deduction means to deduct from the duration of a call by the processing means of the above 2nd, The wireless personal digital assistant characterized by providing the \*\*\*\* means which deducts phonecall charges from the tariff registered beforehand for every predetermined time basis of the message by the processing means of the above 2nd.

[Claim 8] The personal digital assistant which has a short-distance radio function and a cellular-phone function, and the automatic ticket gate which ticket gate processing is performed and is installed in a predetermined station by performing the communication link of data by this personal digital assistant and the short-distance radio function, In the automatic wicket system using the

personal digital assistant which has the becoming cellular-phone function since

-- A notice means to notify [ during the message by the cellular-phone function of the above-mentioned personal digital assistant ] the message partner under above-mentioned message for an inquiry of the installation name of the station of the above-mentioned automatic ticket gate in the reception beam case by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the cellular-phone function of the above-mentioned personal digital assistant after the notice by this notice means, An activation means to perform ticket gate processing after interruption by this interruption means by the communication link of the data of the above-mentioned personal digital assistant and the above-mentioned automatic ticket gate, A restart means to resume the message interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, A part for the time amount interrupted by the above-mentioned interruption means, and a deduction means to deduct from the duration of a call by the above-mentioned cellular-phone function, The automatic wicket system using the personal digital assistant which has the cellular-phone function characterized by providing the

\*\*\*\* means which deducts phonecall charges from the tariff registered beforehand for every predetermined time basis of the message by the

above-mentioned cellular-phone function.

[Claim 9] While ticket gate processing is performed by performing the communication link of data between the automatic ticket gates installed in a predetermined station in the portable telephone system using the portable telephone which has a telephone function When it is made for the above-mentioned portable telephone to be equipped with the means of communications which receives the ticket gate data containing a name of the station at the time of the ticket gate processing by the above-mentioned automatic ticket gate and the above-mentioned portable telephone receives a telephone to it, The portable telephone system characterized by providing a decision means to judge whether the portable telephone concerned is in a yard based on the receiving situation of the above-mentioned means of communications, and a guidance means to guide the purport which is in a yard to the other party of a telephone when it is judged that it is in a yard with this decision means.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the portable telephone used as instead of [ of a ticket ] by exchanging data using an automatic ticket gate and a short-distance radio function.

[0002]

[Description of the Prior Art] The portable telephone which a user usually uses it as a cellular phone, and can be used with an automatic ticket gate instead of a ticket (a commuter pass, SF card) as an addition function using a short-distance radio function (Bluetooth) is proposed.

[0003] However, by the following, even if those who possess a portable telephone go into communication link within the limits by the short-distance radio function of the above-mentioned automatic ticket gate, when it is under message as a cellular phone, it is thought that it cannot use for an automatic ticket gate.

[0004] For this reason, even if it is the case where it is under message as a cellular phone, what can be used for an automatic ticket gate is demanded.

[0005]

[Problem(s) to be Solved by the Invention] It is used as a cellular phone or this invention aims at offering the portable telephone which can be used for an automatic ticket gate, even if it is the case where it is under message as a cellular phone, in the portable telephone used for an automatic ticket gate.

[0006]

[Means for Solving the Problem] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station, this invention In the portable telephone which has a telephone function, during the message by the above-mentioned telephone function A notice means to notify the purport which has passed data, such as a name of the station, through the above-mentioned wicket as the message partner under above-mentioned message in the reception beam case by the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this notice means, It becomes after interruption by this interruption means from a restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means, at the time of termination of the ticket gate processing by activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate, and this activation means.

[0007] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station, this invention A notice means to

notify the message partner under above-mentioned message for data, such as a name of the station, of the above-mentioned name of the station during the message by the above-mentioned telephone function in the portable telephone which has a telephone function in the reception beam case by the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this notice means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, It consists of a deduction means to deduct from a part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and a \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[0008] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station, this invention The 1st notice means which notifies the message partner under above-mentioned message for



data, such as a name of the station, of the above-mentioned name of the station during the message by the above-mentioned telephone function in the portable telephone which has a telephone function in the reception beam case by the short-distance radio function by the above-mentioned automatic ticket gate, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this 1st notice means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, The 2nd notice means which notifies the above-mentioned message partner of the restart of a message when the above-mentioned message is resumed by this restart means, It consists of a deduction means to deduct from a part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and a \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[0009] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic

ticket gate installed in a predetermined station, this invention A reception means to receive initiation of ticket gate processing, and an installation station code during the message by the above-mentioned telephone function in the portable telephone which has a telephone function by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, A conversion means to change a reception beam installation station code into voice data or an indicative data with this reception means, A notice means to notify the message partner under above-mentioned message of the voice data or the indicative data changed by this conversion means, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this notice means, It becomes after interruption by this interruption means from a restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means, at the time of termination of the ticket gate processing by activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate, and this activation means.

[0010] While ticket gate processing is performed by performing the communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station, this invention A reception means to receive initiation of ticket gate processing, and an installation station code

during the message by the above-mentioned telephone function in the portable telephone which has a telephone function by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, A conversion means to change a reception beam installation station code into voice data or an indicative data with this reception means, A transmitting means to transmit the voice data or the indicative data changed by this conversion means to the message partner under above-mentioned message, An interruption means to interrupt the message by the above-mentioned telephone function after transmission by this transmitting means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, It consists of a deduction means to deduct from a part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and a \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[0011] While ticket gate processing is performed by performing the

communication link of data by the short-distance radio function to the automatic ticket gate installed in a predetermined station, this invention A reception means to receive initiation of ticket gate processing, and an installation station code during the message by the above-mentioned telephone function in the portable telephone which has a telephone function by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate, A conversion means to change a reception beam installation station code into voice data or an indicative data with this reception means, The 1st notice means which notifies the message partner under above-mentioned message of the voice data or the indicative data changed by this conversion means, An interruption means to interrupt the message by the above-mentioned telephone function after the notice by this 1st notice means, An activation means to perform ticket gate processing by the communication link of data with the above-mentioned automatic ticket gate after interruption by this interruption means, A restart means to resume the message by the telephone function interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, The 2nd notice means which notifies the above-mentioned message partner of the restart of a message when the above-mentioned message is resumed by this restart means, It consists of a deduction means to deduct from a part for the time amount

interrupted by the above-mentioned interruption means, and the above-mentioned duration of a call, and a \*\*\*\* means which deducts the phonecall charges for the duration of a call deducted by this deduction means from the tariff registered beforehand.

[0012] The 1st processing means which performs processing as a personal digital assistant of a station service wireless system in the wireless personal digital assistant with which this invention performs radio using a short-distance radio function, With the 2nd processing means which performs a message as a cellular phone, and this 2nd processing means, as a cellular phone during a message The notice of the use to the above-mentioned station service wireless system as the partner under message when the inquiry by the short-distance radio function from the external instrument of a station service wireless system occurs, A notice means to notify interruption of a message, and an interruption means to interrupt a message as a cellular phone by the processing means of the above 2nd after the notice by this notice means, The 3rd processing means which performs processing after interruption by this interruption means as a personal digital assistant of the station service wireless system by the processing means of the above 1st, A restart means to resume the message interrupted by the above-mentioned interruption means after termination of processing by this 3rd processing means, It consists of a deduction means to

deduct from the duration of a call by part for the time amount interrupted by the above-mentioned interruption means, and the processing means of the above 2nd, and a \*\*\*\* means which deducts phonecall charges from the tariff registered beforehand for every predetermined time basis of the message by the processing means of the above 2nd.

[0013] The personal digital assistant with which this invention has a short-distance radio function and a cellular-phone function, In the automatic wicket system using the personal digital assistant which has the becoming cellular-phone function the automatic ticket gate which ticket gate processing is performed and is installed in a predetermined station by performing the communication link of data by this personal digital assistant and the short-distance radio function -- since -- During the message by the cellular-phone function of the above-mentioned personal digital assistant, an inquiry as the message partner under above-mentioned message in the reception beam case by the communication link of the data based on the short-distance radio function by the above-mentioned automatic ticket gate The notice of the installation name of the station of the above-mentioned automatic ticket gate, A notice means to notify interruption of a message, and an interruption means to interrupt the message by the cellular-phone function of the above-mentioned personal digital assistant after the notice by this notice means,

An activation means to perform ticket gate processing after interruption by this interruption means by the communication link of the data of the above-mentioned personal digital assistant and the above-mentioned automatic ticket gate, A restart means to resume the message interrupted by the above-mentioned interruption means at the time of termination of the ticket gate processing by this activation means, It consists of a deduction means to deduct from the duration of a call by part for the time amount interrupted by the above-mentioned interruption means, and the above-mentioned cellular-phone function, and a \*\*\*\* means which deducts phonecall charges from the tariff registered beforehand for every predetermined time basis of the message by the above-mentioned cellular-phone function.

[0014] While ticket gate processing is performed by performing the communication link of data between the automatic ticket gates installed in a predetermined station, this invention In the portable telephone system using the portable telephone which has a telephone function When it is made for the above-mentioned portable telephone to be equipped with the means of communications which receives the ticket gate data containing a name of the station at the time of the ticket gate processing by the above-mentioned automatic ticket gate and the above-mentioned portable telephone receives a telephone to it, It consists of a decision means to judge whether the portable

telephone concerned is in a yard based on the receiving situation of the above-mentioned means of communications, and a guidance means to guide the purport which is in a yard to the other party of a telephone when it is judged that it is in a yard with this decision means.

[0015]

[Embodiment of the Invention] Hereafter, the station service wireless system applied to the operation gestalt of this invention with reference to a drawing is explained.

[0016] Drawing 1 shows the outline configuration of the station service wireless system in the case of using the portable telephone M of this invention as a wireless personal digital assistant.

[0017] That is, it connects with each station 1 of a means of transportation, and every -- at the automatic ticket gate 2 as a personal digital assistant processing machine, --, these automatic ticket gates 2 and --, and is constituted by the station control machine 3 which controls them.

[0018] The above-mentioned station control machine 3 is connected to the host computer 4 of the above-mentioned means of transportation, and --, and each host computer 4 and -- are connected by the communication line 7. A database 5 and -- are connected to each host computer 4 and --, respectively.

[0019] An automatic ticket gate 2 is formed in the wicket of a station, and makes



entrance into a ticket gate of the user who possesses a portable telephone M, or participation out of a ticket gate authorization or disapproval.

[0020] The station control machine 3 controls the automatic ticket gate 2 currently installed in the station, and --.

[0021] The above-mentioned portable telephone M is formed of the antenna section 12 a body 11 and for transmission and reception, as shown in drawing 2 and drawing 3 .

[0022] It is constituted sequentially from the top by the front face of a body 11 with the loudspeaker hole 13, the display 14, the control unit 15, and the microphone hole 16. In the body 11 which counters the loudspeaker hole 13, the loudspeaker (not shown) as the receiver section mentioned later is prepared. In the body 11 which counters the microphone hole 16, the microphone (not shown) as the transmission section mentioned later is formed. As for a display 14, various actuation guidance is performed. A control unit 15 performs various setup at the time of using as a cellular phone, inputs the telephone number, performs a setup in the case of using as a personal digital assistant of a station service wireless system, or directs modification of mode setting.

[0023] In the body 11, as shown in drawing 3 , it is constituted by the memory 21 which memorizes various information, such as the control circuit 20 which controls the whole, a control program, and an ID number (recognition number),

the modems 22 and 23 as a modulation demodulator circuit (transceiver circuit), the transmission section 24, the receiver section 25, the power-source generating circuit 26, and the cell section 27.

[0024] The use tariff of the prepaid style to the section data to a commuter pass or the balance data to SF (SUTOADO fair) card, and a cellular phone is memorized by the above-mentioned memory 21.

[0025] Modems 22 and 23 are connected to the antenna section 12 as means of communications, it restores to the received data from the reader writer 42 which received in the antenna section 12, and it outputs to a control circuit 20 and the power-source generating circuit 26, or the transmit data to the reader writer 42 from a control circuit 20 is transmitted using the antenna section 12. Modems 22 and 23 cope with the difference in signal frequency at the time of being used as a portable telephone, and the time of being used as a terminal equipment of a station service system etc., and are formed separately. Moreover, it is controlled by separate application registered into memory 21, when used as a portable telephone, and in case it is used as a terminal equipment of a station service system. That is, the application for a short-distance radio function (Bluetooth) is also prepared.

[0026] That is, it is used as a cellular phone and can usually be used with an automatic ticket gate 2 instead of a ticket (a commuter pass, SF card) as an

addition function using a short-distance radio function (Bluetooth).

[0027] The transmission section 24 is constituted by the microphone etc., and in case it uses as a portable telephone, it changes and outputs the language emitted by the user to voice data.

[0028] The receiver section 25 is constituted by the loudspeaker etc., reproduces the received voice data which was supplied from other devices, and outputs it from a loudspeaker.

[0029] The power-source generating circuit 26 generates supply voltage based on the received data (electric wave) from a modem 22, and supplies it to a control circuit 20, modems 22 and 23, the transmission section 24, the receiver section 25, a control unit 15, and a display 14.

[0030] The cell section 27 supplies supply voltage to each part, when the power-source generating circuit 26 is not operating.

[0031] Drawing 4 shows roughly the appearance configuration of the automatic ticket gate 2 for entrance (for participation) which can process the above-mentioned portable telephone M. An automatic ticket gate 2 is usually installed in the wicket of a station etc. as 2 sets [ 1 ], and the path through which a passing person passes is formed among both.

[0032] A passing person carries in the end section of the top face of the body 32 of an automatic gate machine, and the transceiver field 33 of the antenna

section (it mentions later) 43 for transmitting and receiving an ID number etc. between the portable telephones M equipped with the function transmitted and received by radio is established in it.

[0033] On the body 32, the annunciator section 34 for showing around to a passing person, a station employee, etc. is formed.

[0034] Moreover, the doors 35 and 35 which control passing of a passing person, respectively and in which a switching action is possible are formed in the both ends of the side face by the side of the path of a body 32, and closing motion control of these doors 35 and 35 is carried out based on the judgment result of passing propriety.

[0035] Two or more optical detectors (not shown) as a passing person detection means are formed in the side face by the side of each path of a body 32.

[0036] The configuration of the control network of the automatic ticket gate 2 constituted as mentioned above is explained using drawing 1 . That is, this control network consists of interfaces 45 which transmit information between the main control section 41 which the whole automatic ticket gate 2 controls, the reader writer 42, the antenna section 43, the door device section 44 that drives the above-mentioned door 35, and the station control machine 3 which controls this equipment.

[0037] The reader writer 42 outputs the signal which received the signal from the

main control section 41 through a portable telephone M to the antenna section 43 in transmitting to a portable telephone M \*\*\*\* through the antenna section 43 to the main control section 41.

[0038] The reader writer 42 is constituted by the modem 53 as the memory 52 which memorizes the control circuit 51 which controls the whole, a control program, and various information, and a transceiver circuit as shown in drawing 5.

[0039] Next, it explains, referring to the flow chart shown in drawing 6, drawing 7, drawing 8, and drawing 9 about entrance processing into the ticket gate of a user whose above-mentioned portable telephone M possesses the portable telephone M in the condition under message.

[0040] For example, the main control section 41 of an automatic ticket gate 2 has transmitted the inquiry signal by the Bluetooth function for every predetermined time interval now using the reader writer 42 and the antenna section 43 (ST1).

[0041] In this condition, when the user who possesses a portable telephone M approaches an automatic ticket gate 2 in the condition under message by the cellular-phone function, the control circuit 20 of a portable telephone M receives the inquiry signal from the main control section 41 of an automatic ticket gate 2 (ST2), and transmits the ID number (the identification code which shows a commuter pass or SF card is included) registered into memory 21 to the main

control section 41 of an automatic ticket gate 2 by the Bluetooth function (ST3).

[0042] Subsequently, when transmission of the above-mentioned inquiry signal is answered and the ID number from the control circuit 20 of a portable telephone M is received (ST4), the main control section 41 of an automatic ticket gate 2 confirms whether it is available with the means of transportation with which the portable telephone M of this ID number corresponds, and when available, it recognizes the use as a commuter pass, or the use as an SF card (ST5).

[0043] Consequently, when it is judged with the means of transportation with which a portable telephone M corresponds that it is available and the contents of use have been recognized, the main control section 41 of an automatic ticket gate 2 transmits the station code (SAIBANE code) and time code (SAIBANE code) of this installation station to the control circuit 20 of a portable telephone M (ST6).

[0044] Subsequently, when the control circuit 20 of a portable telephone M answers transmission of the above-mentioned ID number and receives a station code and a time code (ST7), it records this code on memory 21 (ST8), and transmits this record terminate signal to the main control section 41 of an automatic ticket gate 2 (ST9).

[0045] Moreover, the control circuit 20 of a portable telephone M checks whether

it is under [ current message ] \*\*\*\*\* (ST10). When it is not [ be / it ] under message according to this check, the control circuit 20 of a portable telephone M progresses to step 15 mentioned later. However, about 33 and 43 to 46, it carries out through from step 30 later mentioned in this case.

[0046] Moreover, when it is under message according to the check of the above-mentioned step 10, the control circuit 20 of a portable telephone M changes the above-mentioned station code and a time code into an indicative data (JIS code) and voice data (JIS code) (ST11), and transmits this indicative data and voice data that were changed to the partner under present message (ST12). For example, the indicative data and voice data of "entering this station when in how many minutes" are transmitted (notice).

[0047] Thereby, guidance with voice or guidance by display is performed by the telephone of the partner under message.

[0048] Consequently, when the user who possesses the above-mentioned portable telephone M tries to pass the above-mentioned automatic ticket gate 2, the name of the station which passes to the other party under message is notified as voice guidance (display guidance).

[0049] Moreover, you may make it notify guidance of the purport which is passing not a name of the station but an automatic ticket gate to other message persons in a portable telephone M side.

[0050] In addition, when only a station code is received from an automatic ticket gate 2, and the above-mentioned portable telephone M collates with the voice data beforehand recorded on the memory 21 inside a portable telephone M based on this received station code and reads, it may be made to carry out voice guidance.

[0051] Moreover, it has voice guidance data of a name of the station and a guidance message instead of the above-mentioned automatic ticket gates 2 being a station code and a guidance message code, and the voice guidance data of this name of the station and a guidance message may be made to be transmitted to a portable telephone M. In this case, code conversion (conversion to JIS code from a SAIBANE code) by the portable telephone M can be excluded.

[0052] Furthermore, there are many stations, and when data become large, name-of-the-station enquiry data are put on the server (not shown) of the relay center of a portable telephone M etc., a name of the station is judged from the received station code, and it reads in a server, and may be made to carry out voice guidance.

[0053] After the above-mentioned notice, accounting of a telephone rate also interrupts the control circuit 20 of a portable telephone M temporarily while it interrupts the above-mentioned message temporarily (ST13) (ST14). That is, time amount until a message is resumed is deducted from duration of a call, and



is charged.

[0054] Momentary interruption of the above-mentioned message is in the condition that the message function is suspended in the condition [ having connected the circuit ].

[0055] Then, the control circuit 20 of a portable telephone M transmits the section data to the commuter pass registered into memory 21, or the balance data to SF card to the main control section 41 of an automatic ticket gate 2 by the Bluetooth function (ST15).

[0056] Subsequently, when the main control section 41 of an automatic ticket gate 2 receives the section data to the commuter pass from the control circuit 20 of the above-mentioned portable telephone M, or the balance data to SF card (ST16), it confirms whether this entrance is possible (ST17). The balance of whether the installation station of an automatic ticket gate 2 is in the section data of the above-mentioned commuter pass and SF card confirms whether to be more than the minimum section fare.

[0057] When it is judged as a result of the check of this step 17 that entrance is possible, the main control section 41 of an automatic ticket gate 2 transmits the updating balance data which deducted the minimum section fare to the entrance bit or SF card to a commuter pass to the control circuit 20 of a portable telephone M with entrance authorization data (ST18).

[0058] Subsequently, when the control circuit 20 of a portable telephone M receives the updating balance data which deducted the minimum section fare to the entrance bit or SF card to a commuter pass with the above-mentioned entrance authorization data (ST19), This record terminate signal that performs record in the memory 21 of the entrance bit to a commuter pass or updating record in the memory 21 of the updating balance data to SF card (ST20) is transmitted to the main control section 41 of an automatic ticket gate 2 (ST21).

[0059] Subsequently, when it receives the record terminate signal from the control circuit 20 of a portable telephone M (ST22), the main control section 41 of an automatic ticket gate 2 judges passage of the automatic ticket gate 2 of the user who possesses a portable telephone M, i.e., authorization of entrance into a ticket gate, (ST23), authorization of passage is displayed using a display 34, or controls (ST24) and the door device section 44, and opens a door 44 (ST25).

[0060] Moreover, by a passing person's passage detection, the main control section 41 of an automatic ticket gate 2 judges whether entrance into a ticket gate was made, or it has returned, without coming in (ST26), and transmits the decision result of this passage condition to the control circuit 20 of a portable telephone M (ST27).

[0061] Moreover, the control circuit 20 of a portable telephone M displays a passage name of the station and time amount by the display 14, when the

decision result of a passage condition is received (ST28), the decision result of this passage condition is registered into memory 21, the completion of communication of an automatic ticket gate 2 is judged and entrance is made (ST29).

[0062] Furthermore, the control circuit 20 of a portable telephone M also resumes accounting of a telephone rate while resuming the message by which interruption was carried out [ above-mentioned ] after predetermined time progress from authorization of the above-mentioned entrance (ST30) (ST31). That is, it charges on the same conditions as a condition just before a message is interrupted.

[0063] Moreover, by the restart of the message by the above-mentioned step 31, the control circuit 20 of a portable telephone M changes into an indicative data and voice data the decision result of the passage condition currently recorded on memory 21 (ST32), and transmits this indicative data and voice data that were changed to the partner under present message (ST33). For example, the indicative data and voice data of "having entered this station when in how many minutes" are transmitted (notice).

[0064] Thereby, guidance with voice or guidance by display is performed by the telephone of the partner under message.

[0065] Consequently, the partner under message is notified of the passage

condition of the above-mentioned automatic ticket gate 2 by the user who possesses the above-mentioned portable telephone M with voice guidance (display guidance).

[0066] Henceforth, the usual message by the above-mentioned portable telephone M is made.

[0067] In addition, in the above-mentioned step 23, when authorization of passage is made, it may be made to show the message person and other message persons under passage concerned to the purport which can resume a message. In this case, the resumption carbon button of a message is prepared in the control unit 15 of a portable telephone M, and a message is made to resume by this input.

[0068] Moreover, the entrance disapproval data in which the contents of the error also contain the main control section 41 of an automatic ticket gate 2 by passage refusal of the automatic ticket gate 2 of the user who possesses a portable telephone M when judged as entrance disapproval as a result of the check of step 17 that is, in case entrance into a ticket gate is disapproval are transmitted to the control circuit 20 of a portable telephone M (ST34).

[0069] Subsequently, when the control circuit 20 of a portable telephone M receives the above-mentioned entrance disapproval data (ST35), it displays entrance disapproval with the contents of an error by the display 14, and

transmits this record terminate signal that records that use hysteresis on memory 21 (ST36) to the main control section 41 of an automatic ticket gate 2 (ST37).

[0070] It may be made to make the control circuit 20 of a portable telephone M into the oscillation mode at the time of this entrance disapproval (inhibition of passing).

[0071] Moreover, following the above-mentioned step 34, the main control section 41 of an automatic ticket gate 2 displays the disapproval of passage by the display 34 (ST38), controls the door device section 44, and closes a door 44 (ST39).

[0072] Moreover, by a passing person's passage detection, the main control section 41 of an automatic ticket gate 2 judges whether entrance into a ticket gate was made by the forcible breakthrough, or it has returned, without coming in (ST40), and transmits the decision result of this passage condition to the control circuit 20 of a portable telephone M (ST41).

[0073] Subsequently, when the decision result of a passage condition is received (ST42), the control circuit 20 of a portable telephone M registers with memory 21, and it also resumes accounting of a telephone rate while it resumes the message by which interruption was carried out [ above-mentioned ] after predetermined time progress from the disapproval (inhibition of passing) of the

above-mentioned entrance (ST43) (ST44). That is, it charges on the same conditions as the condition that the message was interrupted just before being carried out.

[0074] Moreover, by the restart of the message by the above-mentioned step 43, the control circuit 20 of a portable telephone M changes into an indicative data and voice data the decision result of the passage condition currently recorded on memory 21 (ST45), and transmits this indicative data and voice data that were changed to the partner under present message (ST46). For example, the indicative data and voice data of "having carried out forcible entrance when at this station in how many minutes" are transmitted (notice).

[0075] Thereby, guidance with voice or guidance by display is performed by the telephone of the partner under message.

[0076] Consequently, the partner under message is notified of the passage condition of the above-mentioned automatic ticket gate 2 by the user who possesses the above-mentioned portable telephone M with voice guidance (display guidance).

[0077] Henceforth, the usual message by the above-mentioned portable telephone M is made.

[0078] Moreover, since the portable telephone M is receiving and recording passage hysteresis, such as a passage name of the station from an automatic

ticket gate 2, and time of day, it can display this passage hysteresis by the display menu of a portable telephone M.

[0079] In addition, when the message is made as the above-mentioned cellular phone, the phonecall charges decided by relation with the phase hand who is talking over the telephone are paid from the use tariff of the prepaid style to the cellular phone currently recorded on memory 21 (reduced).

[0080] Next, it explains, referring to the flow chart shown in drawing 10 , drawing 11 , drawing 12 , and drawing 13 about participation processing out of the ticket gate of a user whose above-mentioned portable telephone M possesses the portable telephone M in the condition under message.

[0081] For example, the main control section 41 of an automatic ticket gate 2 has transmitted the inquiry signal by the Bluetooth function for every predetermined time interval now using the reader writer 42 and the antenna section 43 (ST101).

[0082] In this condition, when the user who possesses a portable telephone M approaches an automatic ticket gate 2 in the condition under message by the cellular-phone function, the control circuit 20 of a portable telephone M receives the inquiry signal from the main control section 41 of an automatic ticket gate 2 (ST102), and transmits the ID number (the identification code which shows a commuter pass or SF card is included) registered into memory 21 to the main control section 41 of an automatic ticket gate 2 by the Bluetooth function

(ST103).

[0083] Subsequently, when transmission of the above-mentioned inquiry signal is answered and the ID number from the control circuit 20 of a portable telephone M is received (ST104), the main control section 41 of an automatic ticket gate 2 confirms whether it is available with the means of transportation with which the portable telephone M of this ID number corresponds, and when available, it recognizes the use as a commuter pass, or the use as an SF card (ST105).

[0084] Consequently, when it is judged with the means of transportation with which a portable telephone M corresponds that it is available and the contents of use have been recognized, the main control section 41 of an automatic ticket gate 2 transmits the station code (SAIBANE code) and time code (SAIBANE code) of this installation station to the control circuit 20 of a portable telephone M (ST106).

[0085] Subsequently, when the control circuit 20 of a portable telephone M answers transmission of the above-mentioned ID number and receives a station code and a time code (ST107), it records this code on memory 21 (ST108), and transmits this record terminate signal to the main control section 41 of an automatic ticket gate 2 (ST109).

[0086] Moreover, the control circuit 20 of a portable telephone M checks whether



it is under [ current message ] \*\*\*\*\* (ST110). When it is not [ be / it ] under message according to this check, the control circuit 20 of a portable telephone M progresses to step 105 mentioned later. However, about 133 and 143 to 146, it carries out through from step 130 later mentioned in this case.

[0087] Moreover, when it is under message according to the check of the above-mentioned step 110, the control circuit 20 of a portable telephone M changes the above-mentioned station code and a time code into an indicative data (JIS code) and voice data (JIS code) (ST111), and transmits this indicative data and voice data that were changed to the partner under present message (ST112). For example, the indicative data and voice data of "participating in this station when in how many minutes" are transmitted (notice).

[0088] Thereby, guidance with voice or guidance by display is performed by the telephone of the partner under message.

[0089] Consequently, when the user who possesses the above-mentioned portable telephone M tries to pass the above-mentioned automatic ticket gate 2, the name of the station which passes to the other party under message is notified as voice guidance (display guidance).

[0090] After the above-mentioned notice, accounting of a telephone rate also interrupts the control circuit 20 of a portable telephone M temporarily while it interrupts the above-mentioned message temporarily (ST113) (ST114). That is,

time amount until a message is resumed is deducted from duration of a call, and is charged.

[0091] Momentary interruption of the above-mentioned message is in the condition that the message function is suspended in the condition [ having connected the circuit ].

[0092] Then, the control circuit 20 of a portable telephone M transmits the section data to the commuter pass registered into memory 21, or the balance data to SF card to the main control section 41 of an automatic ticket gate 2 by the Bluetooth function (ST115).

[0093] Subsequently, when the main control section 41 of an automatic ticket gate 2 receives the section data to the commuter pass from the control circuit 20 of the above-mentioned portable telephone M, or the balance data to SF card (ST116), it confirms whether this participation is possible (ST117). It confirms whether to be more than the tariff to which the balance of whether the installation station of an automatic ticket gate 2 is in the section data of the above-mentioned commuter pass and SF card deducted the minimum section fare from the use fare.

[0094] When it is judged as a result of the check of this step 117 that participation is possible, the main control section 41 of an automatic ticket gate 2 transmits the updating balance data which deducted the tariff which deducted

the minimum section fare from the use fare to the participation bit or SF card to a commuter pass to the control circuit 20 of a portable telephone M with participation authorization data (ST118).

[0095] Subsequently, when the control circuit 20 of a portable telephone M receives the updating balance data which deducted the tariff which deducted the minimum section fare from the use fare to the participation bit or SF card to a commuter pass with the above-mentioned participation authorization data (ST119), This record terminate signal that performs record in the memory 21 of the participation bit to a commuter pass or updating record in the memory 21 of the updating balance data to SF card (ST120) is transmitted to the main control section 41 of an automatic ticket gate 2 (ST121).

[0096] Subsequently, when it receives the record terminate signal from the control circuit 20 of a portable telephone M (ST122), the main control section 41 of an automatic ticket gate 2 judges passage of the automatic ticket gate 2 of the user who possesses a portable telephone M, i.e., authorization of participation out of a ticket gate, (ST123), authorization of passage is displayed using a display 34, or controls (ST124) and the door device section 44, and opens a door 44 (ST125).

[0097] Moreover, by a passing person's passage detection, the main control section 41 of an automatic ticket gate 2 judges whether participation out of a

ticket gate was made, or it has returned, without participating (ST126), and transmits the decision result of this passage condition to the control circuit 20 of a portable telephone M (ST127).

[0098] Moreover, the control circuit 20 of a portable telephone M displays a passage name of the station and time amount by the display 14, when the decision result of a passage condition is received (ST128), the decision result of this passage condition is registered into memory 21, the completion of communication of an automatic ticket gate 2 is judged and participation is made (ST129).

[0099] Furthermore, the control circuit 20 of a portable telephone M also resumes accounting of a telephone rate while resuming the message by which interruption was carried out [ above-mentioned ] after predetermined time progress from authorization of the above-mentioned participation (ST130) (ST131). That is, it charges on the same conditions as a condition just before a message is interrupted.

[0100] Moreover, by the restart of the message by the above-mentioned step 131, the control circuit 20 of a portable telephone M changes into an indicative data and voice data the decision result of the passage condition currently recorded on memory 21 (ST132), and transmits this indicative data and voice data that were changed to the partner under present message (ST133). For

example, the indicative data and voice data of "having participated in this station when in how many minutes" are transmitted (notice).

[0101] Thereby, guidance with voice or guidance by display is performed by the telephone of the partner under message.

[0102] Consequently, the partner under message is notified of the passage condition of the above-mentioned automatic ticket gate 2 by the user who possesses the above-mentioned portable telephone M with voice guidance (display guidance).

[0103] Henceforth, the usual message by the above-mentioned portable telephone M is made.

[0104] Moreover, the participation disapproval data in which the contents of the error also contain the main control section 41 of an automatic ticket gate 2 by passage refusal of the automatic ticket gate 2 of the user who possesses a portable telephone M when judged as participation disapproval as a result of the check of step 117 that is, in case participation out of a ticket gate is disapproval are transmitted to the control circuit 20 of a portable telephone M (ST134).

[0105] Subsequently, when the control circuit 20 of a portable telephone M receives the above-mentioned participation disapproval data (ST135), it displays participation disapproval with the contents of an error by the display 14, and transmits this record terminate signal that records that use hysteresis on

memory 21 (ST136) to the main control section 41 of an automatic ticket gate 2 (ST137).

[0106] Moreover, following the above-mentioned step 134, the main control section 41 of an automatic ticket gate 2 displays the disapproval of passage by the display 34 (ST138), controls the door device section 44, and closes a door 44 (ST139).

[0107] Moreover, by a passing person's passage detection, the main control section 41 of an automatic ticket gate 2 judges whether participation out of a ticket gate was made by the forcible breakthrough, or it has returned, without participating (ST140), and transmits the decision result of this passage condition to the control circuit 20 of a portable telephone M (ST141).

[0108] Subsequently, when the decision result of a passage condition is received (ST142), the control circuit 20 of a portable telephone M registers with memory 21, and it also resumes accounting of a telephone rate while it resumes the message by which interruption was carried out [ above-mentioned ] after predetermined time progress from the disapproval (inhibition of passing) of the above-mentioned participation (ST143) (ST144). That is, it charges on the same conditions as a condition just before a message is interrupted.

[0109] Moreover, by the restart of the message by the above-mentioned step 143, the control circuit 20 of a portable telephone M changes into an indicative

data and voice data the decision result of the passage condition currently recorded on memory 21 (ST145), and transmits this indicative data and voice data that were changed to the partner under present message (ST146). For example, the indicative data and voice data of "having carried out forcible participation when at this station in how many minutes" are transmitted (notice).

[0110] Thereby, guidance with voice or guidance by display is performed by the telephone of the partner under message.

[0111] Consequently, the partner under message is notified of the passage condition of the above-mentioned automatic ticket gate 2 by the user who possesses the above-mentioned portable telephone M with voice guidance (display guidance).

[0112] Henceforth, the usual message by the above-mentioned portable telephone M is made.

[0113] As described above, in the automatic ticket gate which can be used with a portable telephone, it enables it to pass an automatic ticket gate during a message as a cellular phone, and during passage, a message is interrupted and guidance of the name of the station under passage is transmitted to the other party of a message.

[0114] That is, when a doubling signal is received with a cellular phone while depending during the message at Bluetooth by the side of an automatic ticket

gate, a Bluetooth communication link is permitted, in an automatic ticket gate side, passage judging processing is performed and guidance of the purport which is passing through the station corresponding to an automatic ticket gate to other message persons is notified at a portable telephone side.

[0115] Consequently, an automatic ticket gate can be used also during a message and accounting of a telephone rate can be interrupted temporarily.

[0116] Moreover, the other party of a message can be notified of a name of the station with voice guidance at the time of passage of an automatic ticket gate.

[0117] Furthermore, the name-of-the-station data of voice guidance may be given to which locations, such as a server of the relay center of a portable telephone, in the body of an automatic ticket gate, and a portable telephone.

[0118] Moreover, since the notice of a use station is made while an automatic ticket gate becomes available also in a message, it also becomes a wandering person's etc. search utilizable.

[0119] Moreover, it memorizes by the server which controls the memory in the purport cellular phone whose automatic ticket gate is in a yard when having come in with the cellular phone, or the communication link of a cellular phone. If a telephone takes for the cellular phone concerned at this time, the purport which is in a current yard (inside of a car) to the other party who telephoned will be notified by telephone, and both message will be started. In addition, since it is



the outside of a station when it communicates with an automatic ticket gate and participates outside the enclosure of a station, the above-mentioned notice is not performed.

[0120] Furthermore, when it is in a yard, the other party is notified of that, and it may be made to carry out the reception storage of a partner's message by prior setup.

[0121] a telephone within the yard which is a public place by this, and a car, and a long telephone -- a suppression colander -- things are made.

[0122]

[Effect of the Invention] As explained in full detail above, even if it is the case where it is under message as a cellular phone in the portable telephone which according to this invention uses it as a cellular phone or is used for an automatic ticket gate, the portable telephone which can be used for an automatic ticket gate can be offered.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the outline configuration of the station service wireless system for explaining the operation gestalt of this invention.

[Drawing 2] Drawing showing the appearance configuration of a portable

telephone roughly.

[Drawing 3] The block diagram showing the outline configuration of a portable telephone.

[Drawing 4] Drawing showing the appearance configuration of an automatic ticket gate roughly.

[Drawing 5] The block diagram showing the outline configuration of a reader writer.

[Drawing 6] The flow chart for explaining entrance processing into a ticket gate of the user who possesses a portable telephone.

[Drawing 7] The flow chart for explaining entrance processing into a ticket gate of the user who possesses a portable telephone.

[Drawing 8] The flow chart for explaining entrance processing into a ticket gate of the user who possesses a portable telephone.

[Drawing 9] The flow chart for explaining entrance processing into a ticket gate of the user who possesses a portable telephone.

[Drawing 10] The flow chart for explaining participation processing out of a ticket gate of the user who possesses a portable telephone.

[Drawing 11] The flow chart for explaining participation processing out of a ticket gate of the user who possesses a portable telephone.

[Drawing 12] The flow chart for explaining participation processing out of a ticket

gate of the user who possesses a portable telephone.

[Drawing 13] The flow chart for explaining participation processing out of a ticket

gate of the user who possesses a portable telephone.

[Description of Notations]

M -- Portable telephone

1 -- Station

2 -- Automatic ticket gate

4 -- Host computer

5 -- Database

14 -- Display

15 -- Control unit

20 -- Control circuit

21 -- Memory

41 -- Main control section

42 -- Reader writer